

General Description

The ZM390P04S combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. This device is ideal for load switch and battery protection applications.

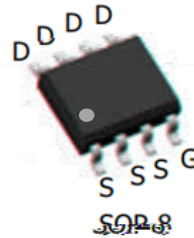
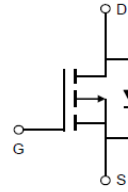
Features

Advance high cell density Trench technology
 $R_{DS(ON)}$ to minimize conductive loss

Application

nd Synchronous Rectifier

Product Summary



Ordering Information:

| | |
|---------------------------|-----------|
| Part NO. | ZM390P04S |
| Marking | ZM390P04 |
| Packing Information | REEL TAPE |
| Basic ordering unit (pcs) | 4000 |

Absolute Maximum Ratings $T_C = 25$

| Parameter | Symbol | Rating | Unit |
|--------------------------------|-------------------|------------|------|
| Drain-Source Voltage | V_{DS} | -40 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Continuous Drain Current | $I_D @ T_C = 25$ | -6 | A |
| | $I_D @ T_C = 75$ | -4.6 | A |
| | $I_D @ T_C = 100$ | -3.8 | A |
| Pulsed Drain Current | I_{DM} | -36 | A |
| Total Power Dissipation | $P_D @ T_C = 25$ | 3.4 | W |
| Total Power Dissipation | $P_D @ T_A = 25$ | 0.69 | W |
| Operating Junction Temperature | T_J | -55 to 150 | |
| Storage Temperature | T_{STG} | -55 to 150 | |
| Single Pulse Avalanche Energy | E_{AS} | 30 | mJ |

**Thermal resistance**

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|--|------------|------|------|------|-------|
| Thermal resistance, junction - case | R_{thJC} | - | - | 24 | ° C/W |
| Thermal resistance, junction - ambient | R_{thJA} | - | - | 75 | ° C/W |

Fig.1 Power Dissipation Derating Curve

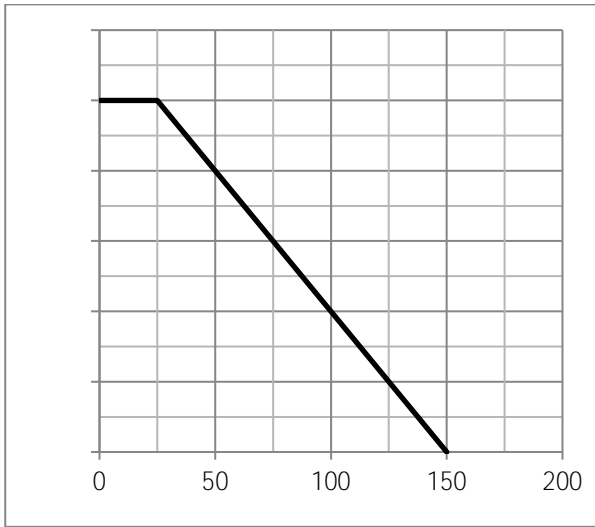


Fig.2 Typical output Characteristics

Fig.3 Threshold Voltage V.S Junction Temperature

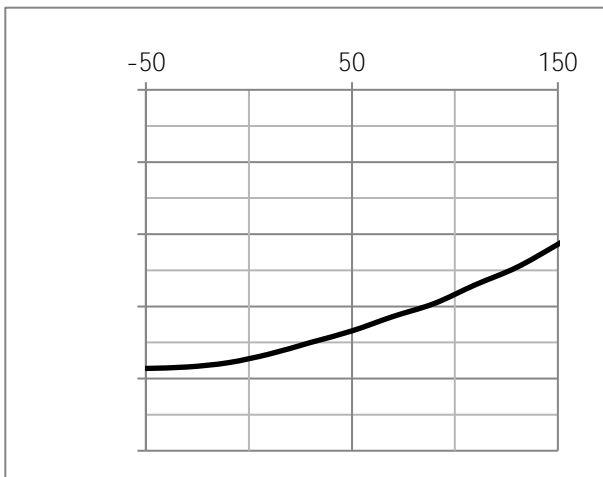


Fig.4 Resistance V.S Drain Current

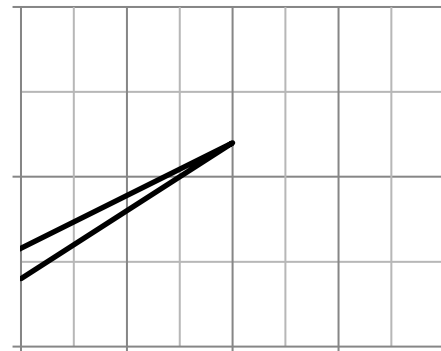
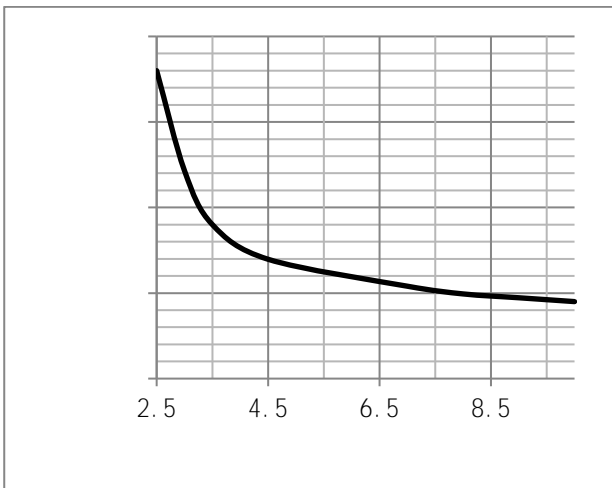


Fig.7 SOA Maximum Safe Operating Area

Fig.8 ID-Junction Temperature

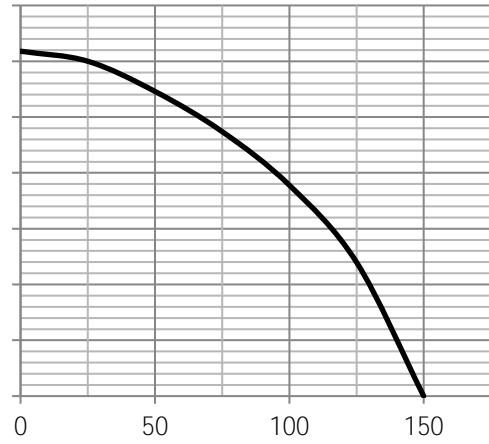


Fig.10

Fig.11

Fig.12 Switching Time Measurement Circuit

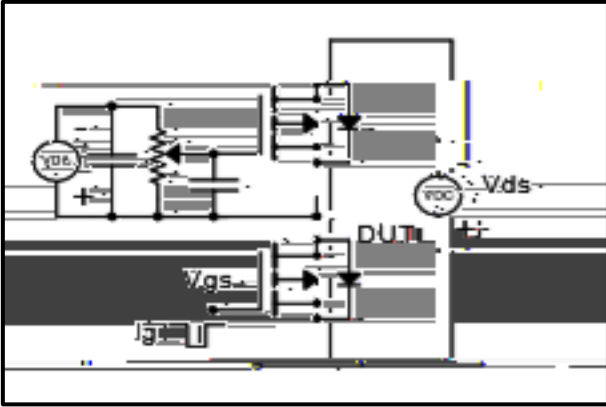


Fig.13 Gate Charge Waveform

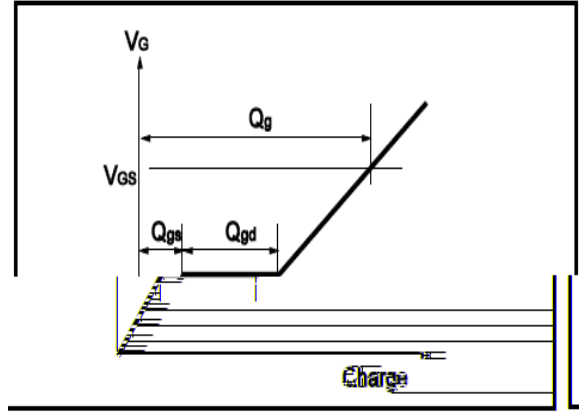


Fig.14 Switching Time Measurement Circuit

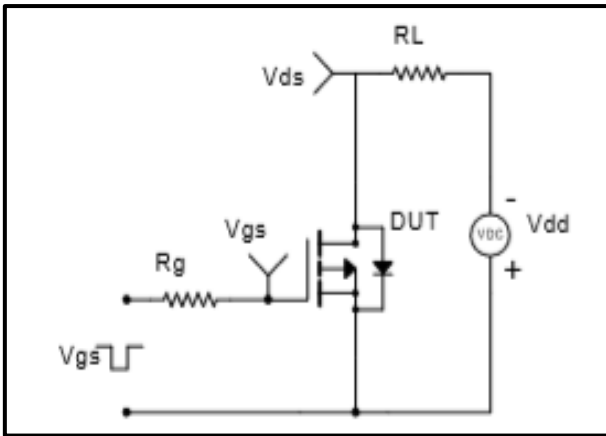


Fig.15 Gate Charge Waveform

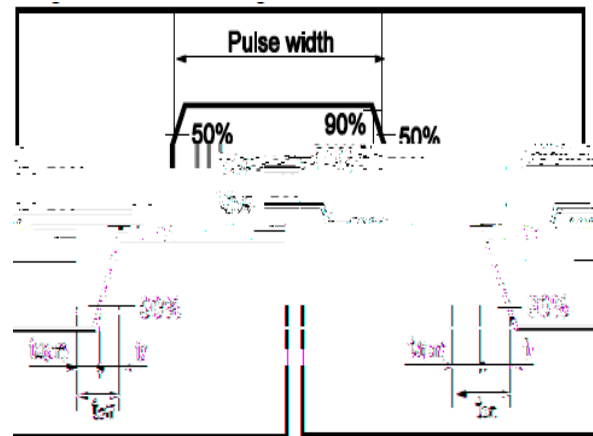


Fig.16 Avalanche Measurement Circuit

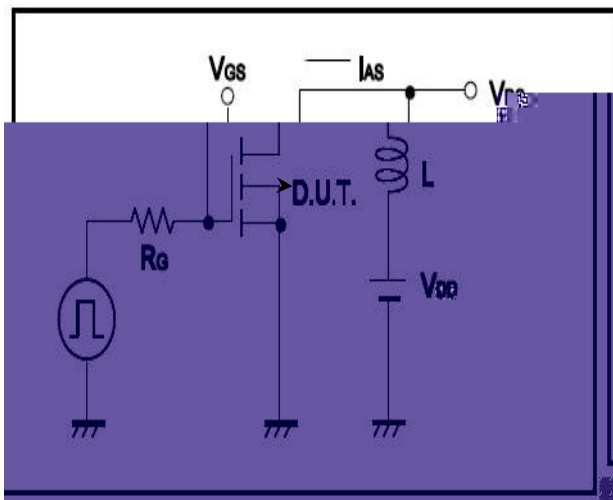


Fig.17 Avalanche Waveform

